

ASSESSMENT OF SUB-SURFACE WATER QUALITY FOR IRRIGATIONAL SUITABILITY IN RAICHUR TALUK, ONE OF THE HARD ROCK REGIONS OF KARNATAKA

Riyaz^a, Manjunatha. S^a and Ajaykumar N. Asode^{b*}

^a*Dept. of Geology, Karnatak Science College, Karnatak University, Dharwad, Karnataka*

^b*Dept. of Studies in Geology, Karnatak University, Dharwad, Karnataka*

**E-mail: ajayasode@gmail.com*; riyazgeo28@gmail.com*

Abstract

The present investigations deal with evaluation of water quality in Raichur Taluk of Karnataka, for irrigational suitability. Fifty nine groundwater samples were collected each during pre- and post- monsoon season from various locations covering the entire Raichur taluk, Karnataka. Physico-chemical parameters such as pH, EC, TDS, TH, Ca, Mg, Na, K, CO₃, HCO₃, Cl, SO₄, F and NO₃ were analyzed following standard procedures. Based on the above results, agricultural parameters like SAR, Na%, RSC, MAR, MH, PI, KI were calculated. From the results, it was noticed that most groundwaters in the study area falls under Good to Permissible class of irrigational use based on EC and Na% values during both the seasons. Based on the values of TH it is suggested that 50 and 45 number of samples during PRM and POM respectively were falling in Very Hard category. Further, based on values of parameters- SAR and RSC the water samples were found to be falling in class Excellent to Good during both seasons. Based on Richard's USSL diagram the water samples were found to be low to moderately saline during both seasons. Groundwater infiltration rate in the study area is slow and less due to erratic trend of rains.

Keywords: Irrigation, Water quality, Sodium Absorption Ratio, Permeability Index, Raichur, Karnataka